

# KIC 008160510

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008160510-01	OBS	No	374.894525	257.647360	715.6	12.500	8.9	-1.0	1.09	6246	2.92	1.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008160510-01	OBS	FP	0.00	1	0	1	0	<del>INDIV_TRANS</del> <del>MARSHALL_SKYE</del> <del>LPP_DV</del> <del>ALL_TRANS_CHASES</del> <del>CENT_NOFITS</del> <del>HALO_GHOST</del>

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

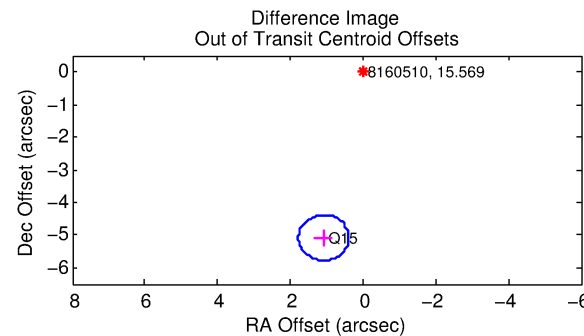
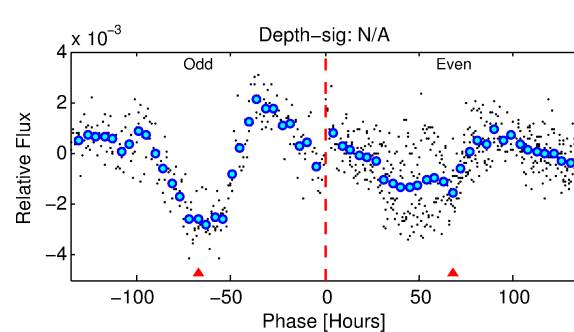
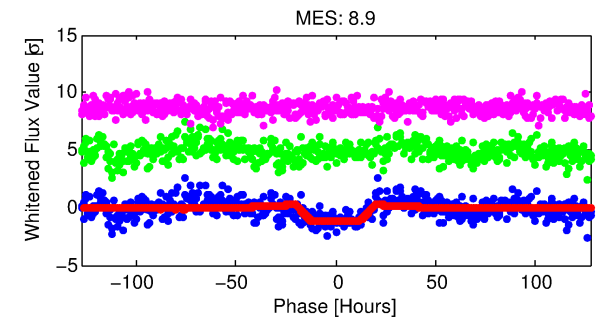
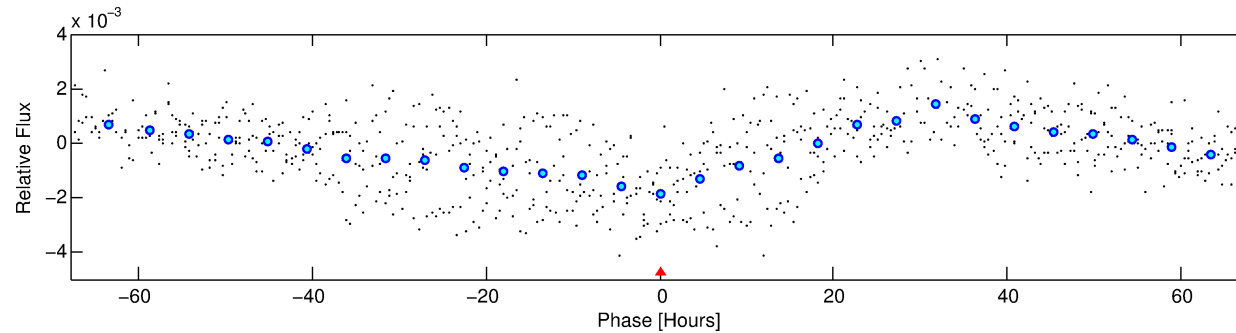
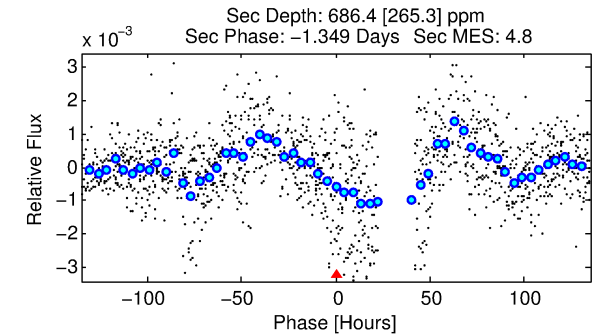
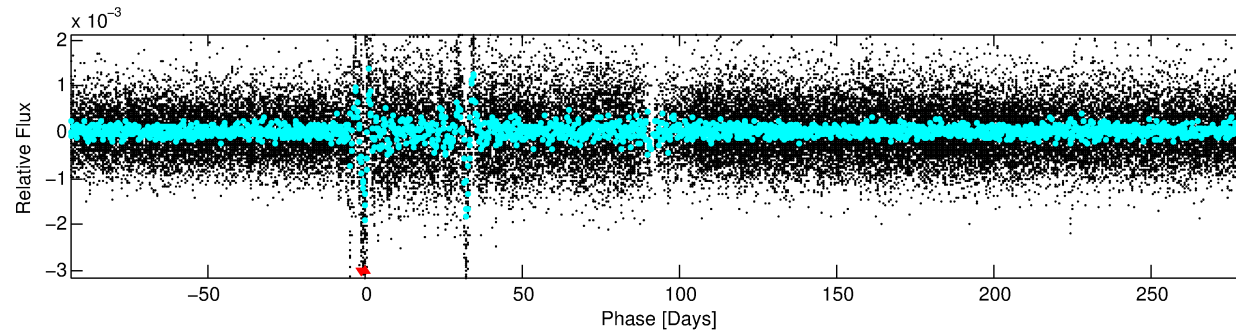
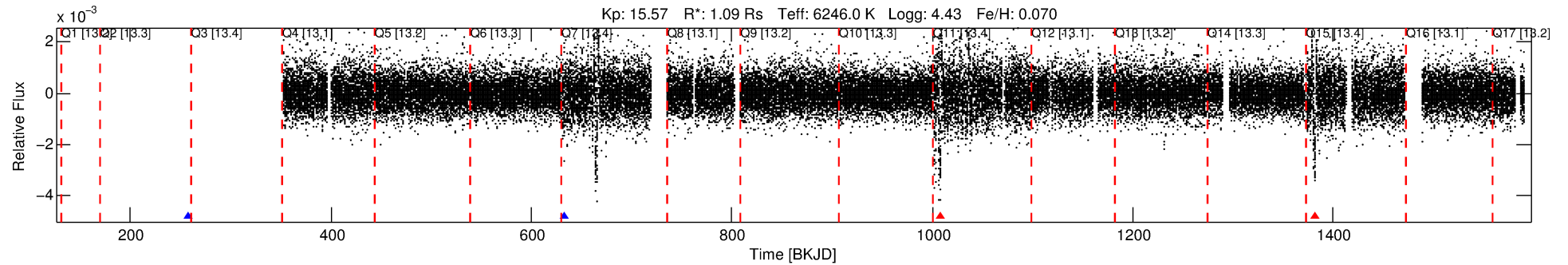
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008160510-01

No Significant Match Found

# DV One-Page Summary

KIC: 8160510 Candidate: 1 of 1 Period: 374.895 d



## TPS TCE Results:

Period = 374.89453 d  
Epoch = 257.6474 BKJD

DV fit results are unavailable

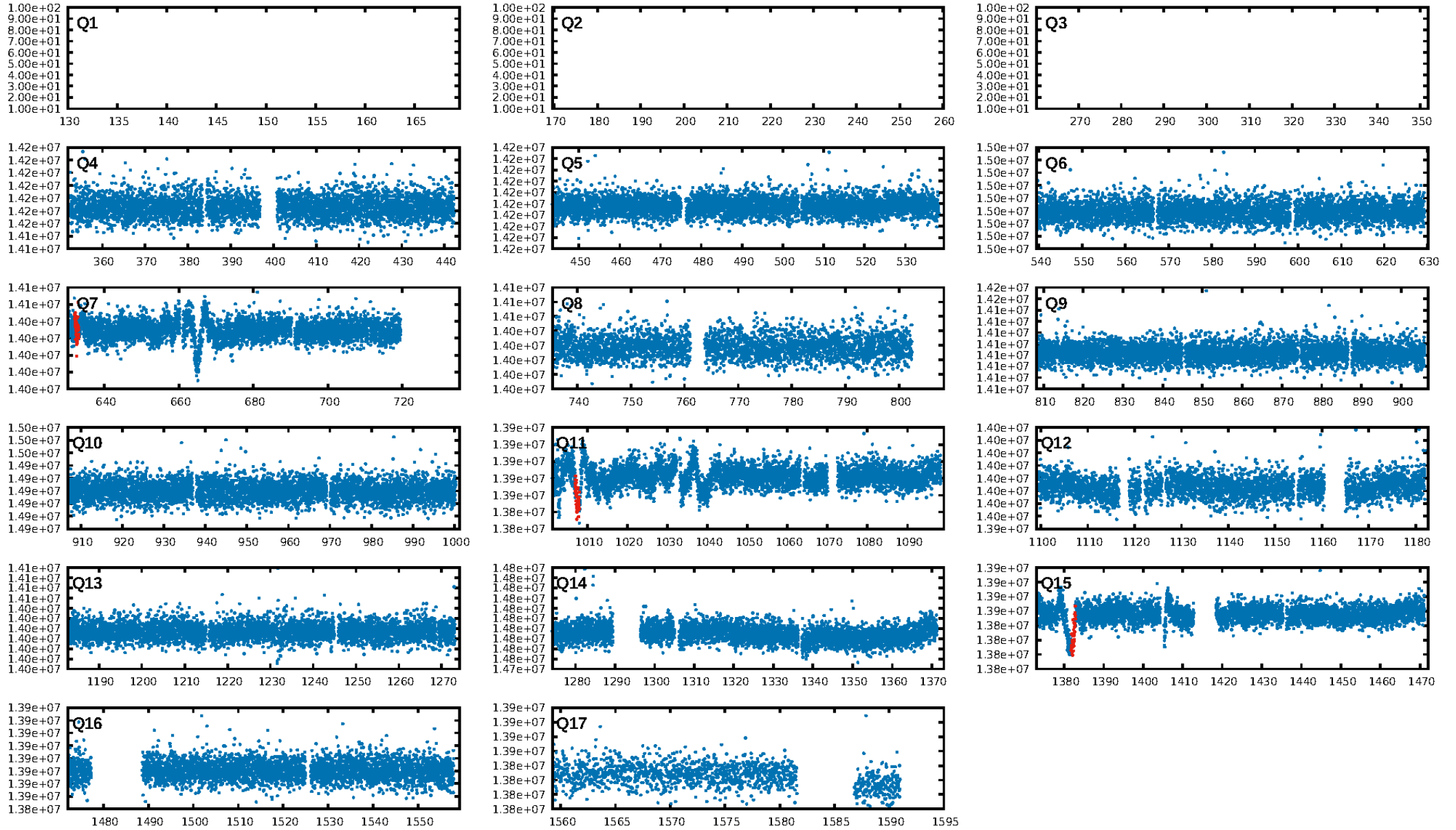
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 9.91e-19  
RollingBand-fgt: 0.33 [1/3]  
GhostDiagnostic-chr: -0.08562  
Centroid-sig: 0.0%  
Centroid-so: 4.209 arcsec [2.94σ]  
OotOffset-rm: 5.200 arcsec [22.44σ]  
KicOffset-rm: 1.209 arcsec [5.22σ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [1/1]

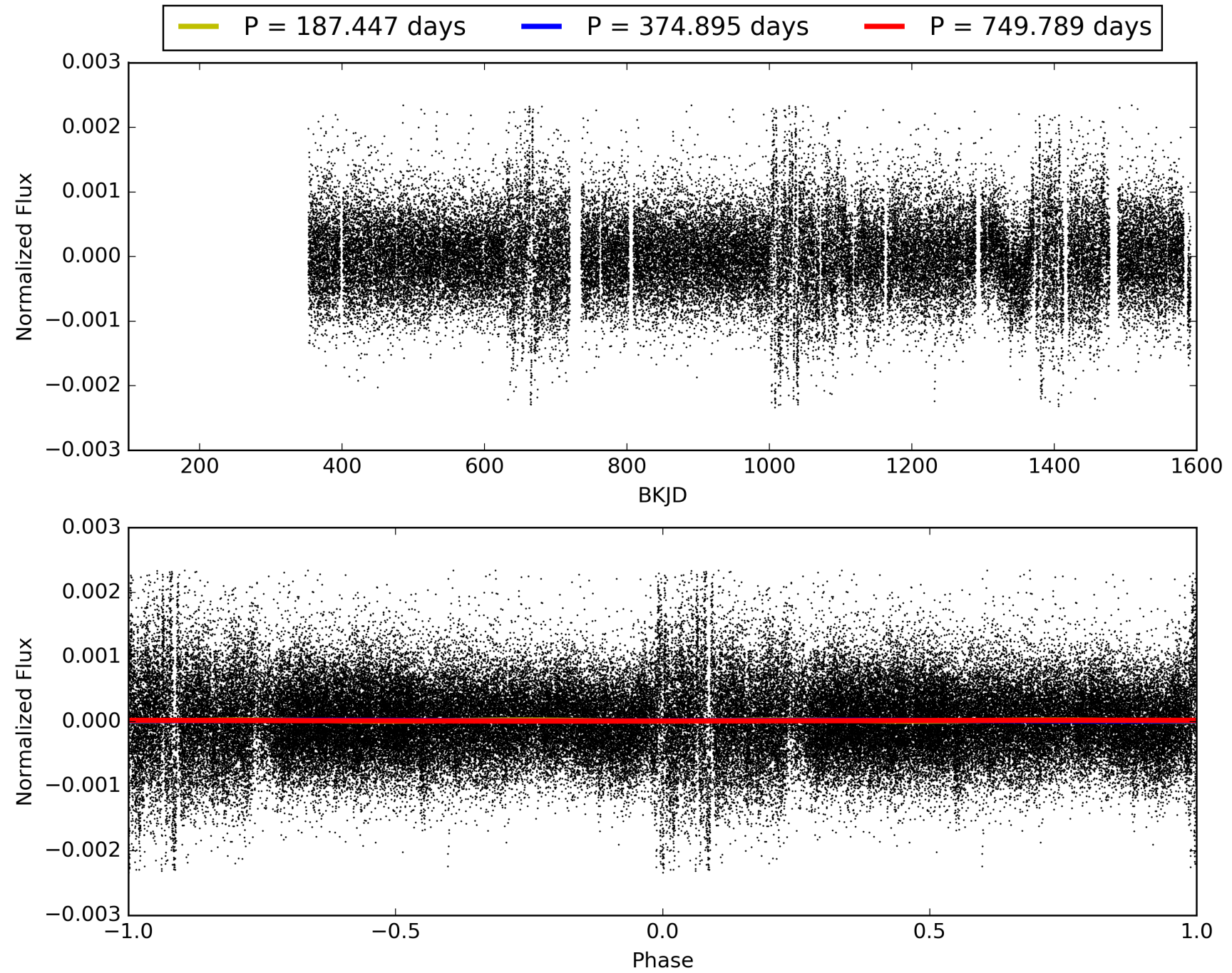
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:39:43 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008160510-01, PDC Light Curves

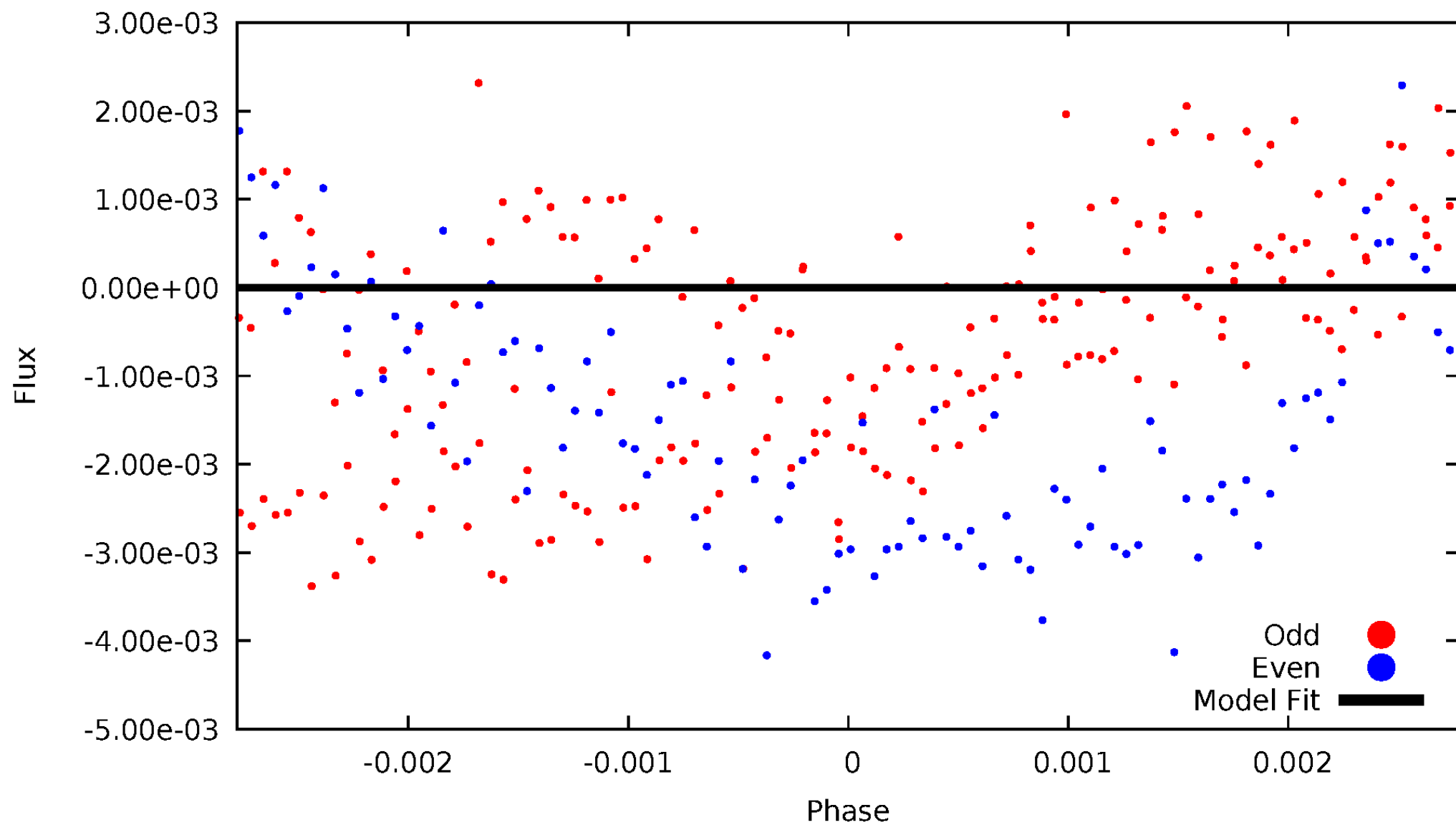


TCE 008160510-01



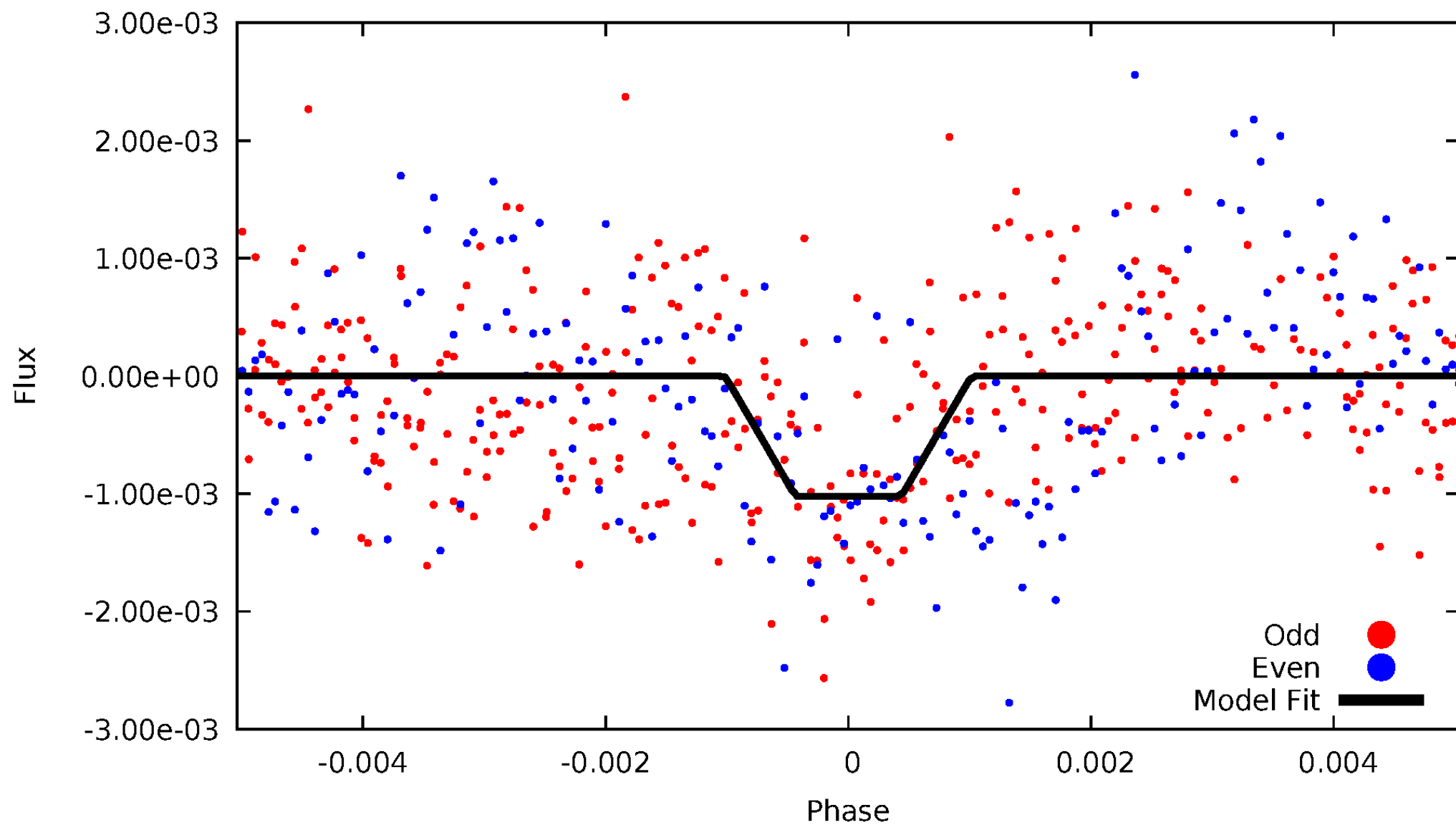
# DV Odd/Even

TCE 008160510-01

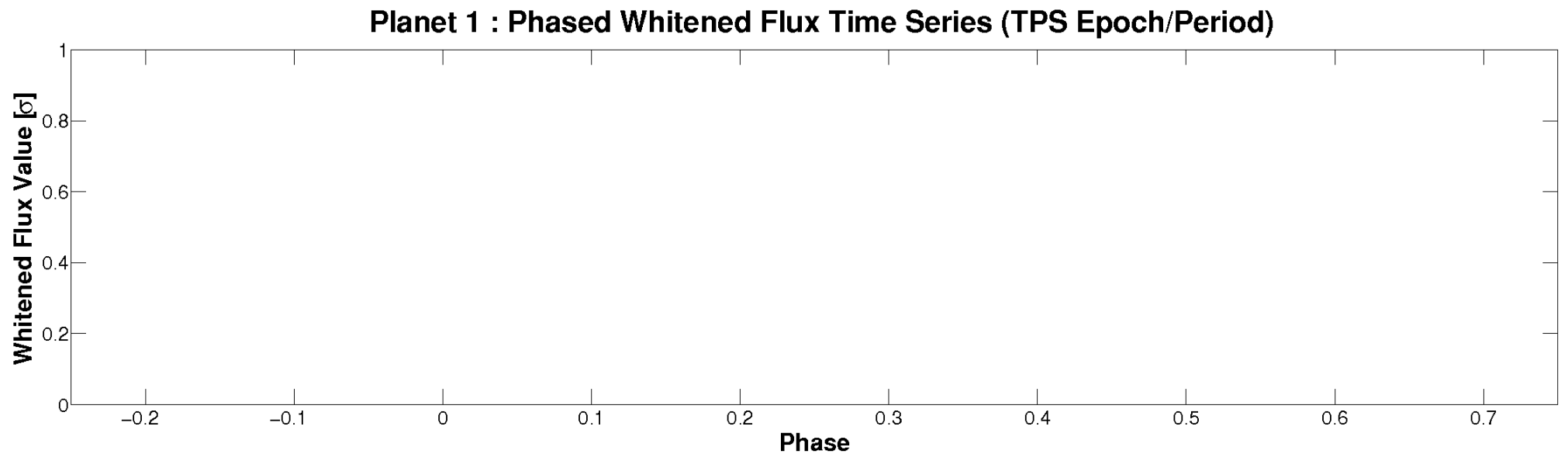
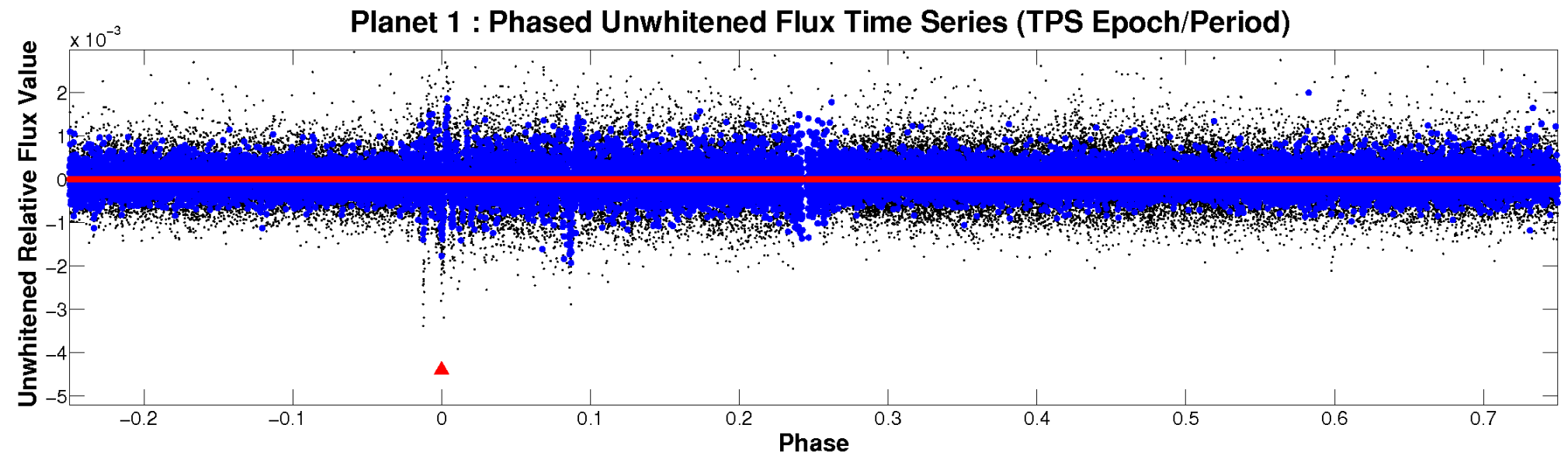


# ALT Odd/Even

TCE 008160510-01

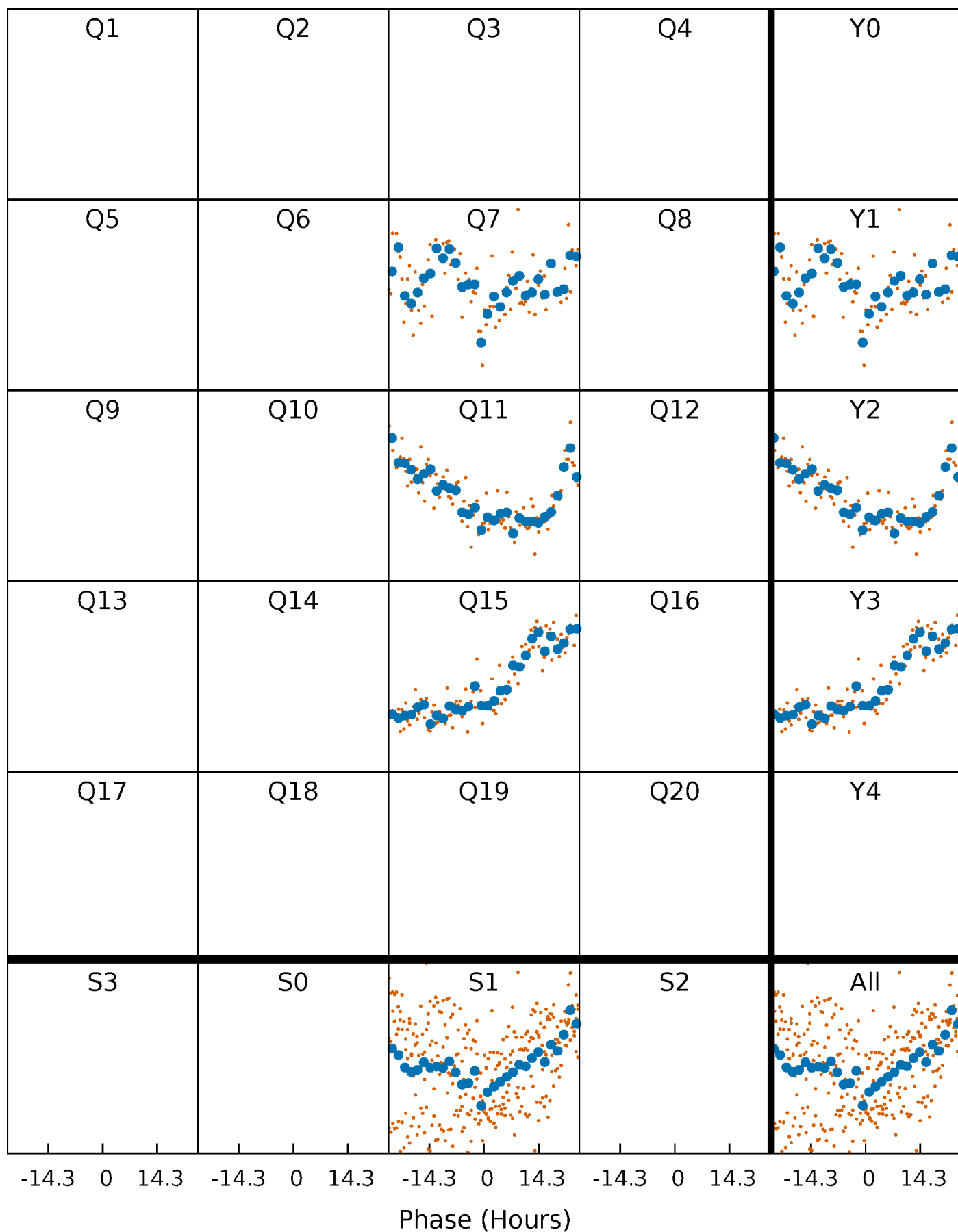


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

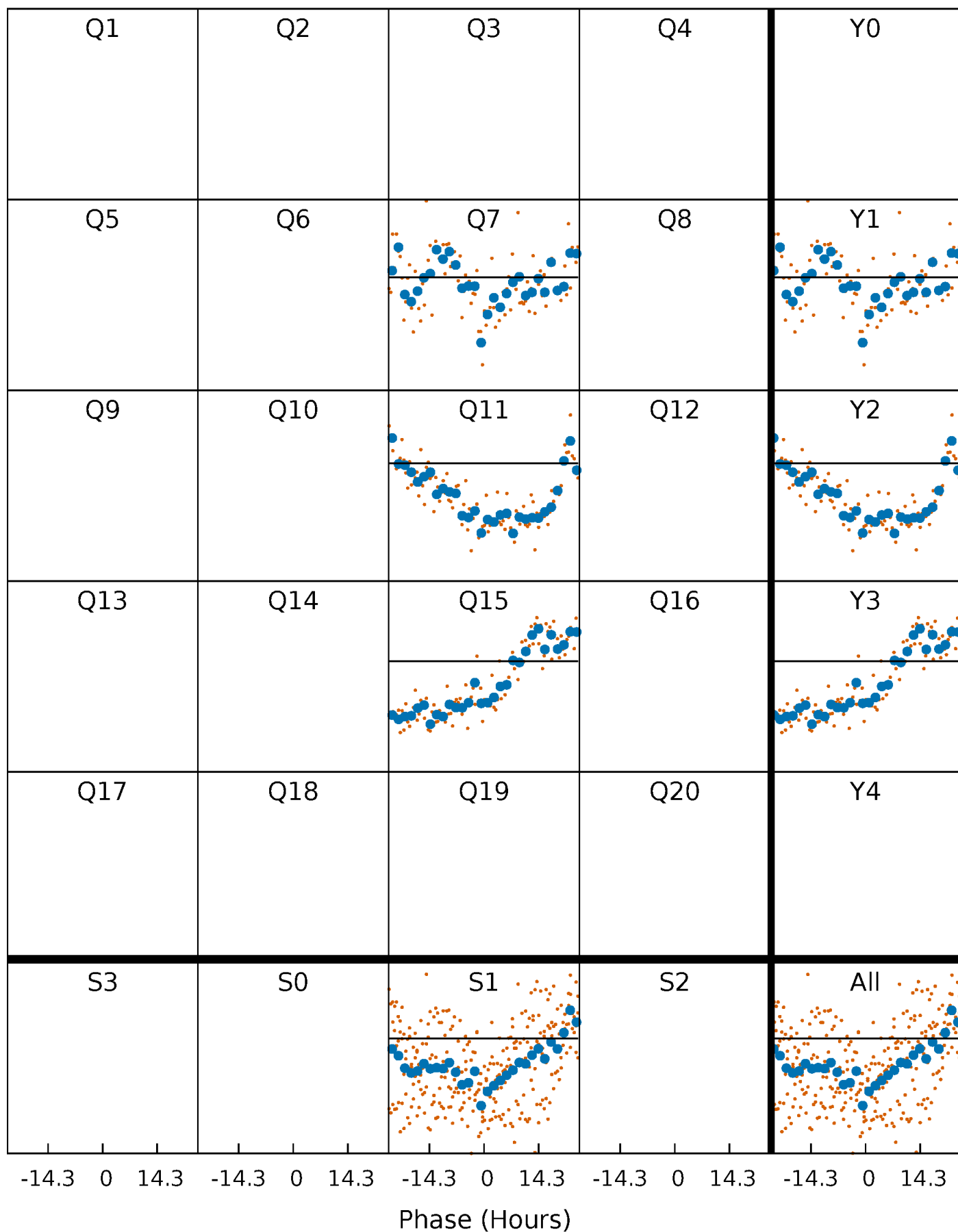
TCE 008160510-01 P=374.894525 Days  $T_0=257.647360$  (BKJD)





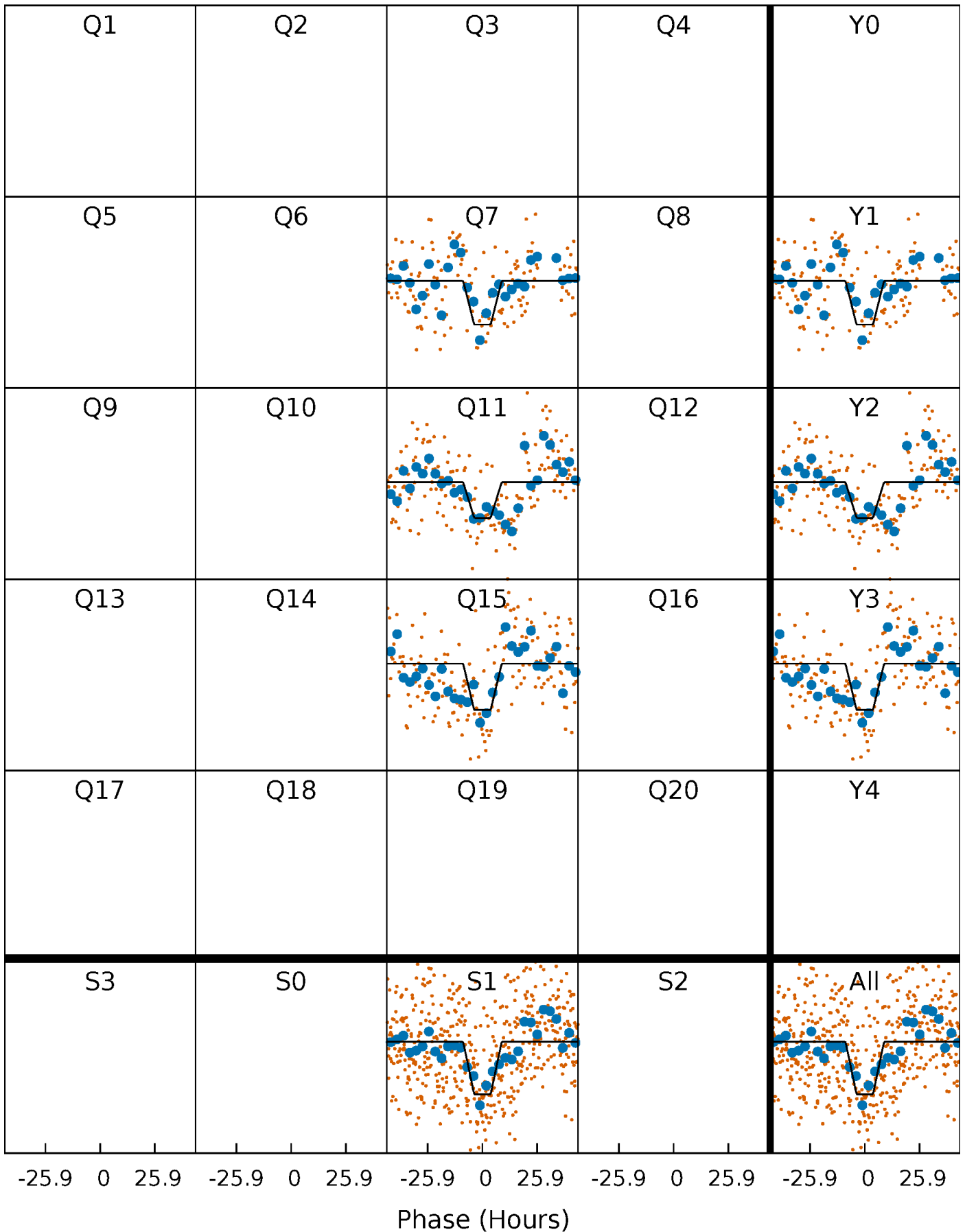
# DV Quarter-Phased Transit Curves

TCE 008160510-01 P=374.894525 Days  $T_0=257.647360$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

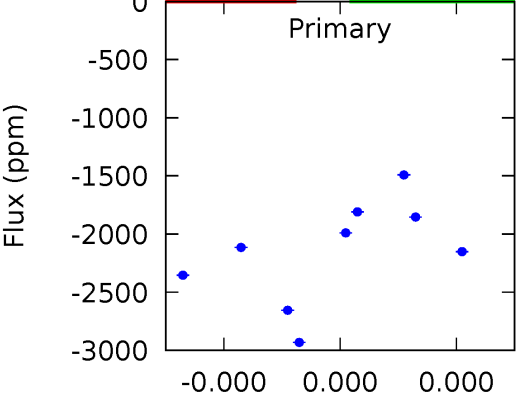
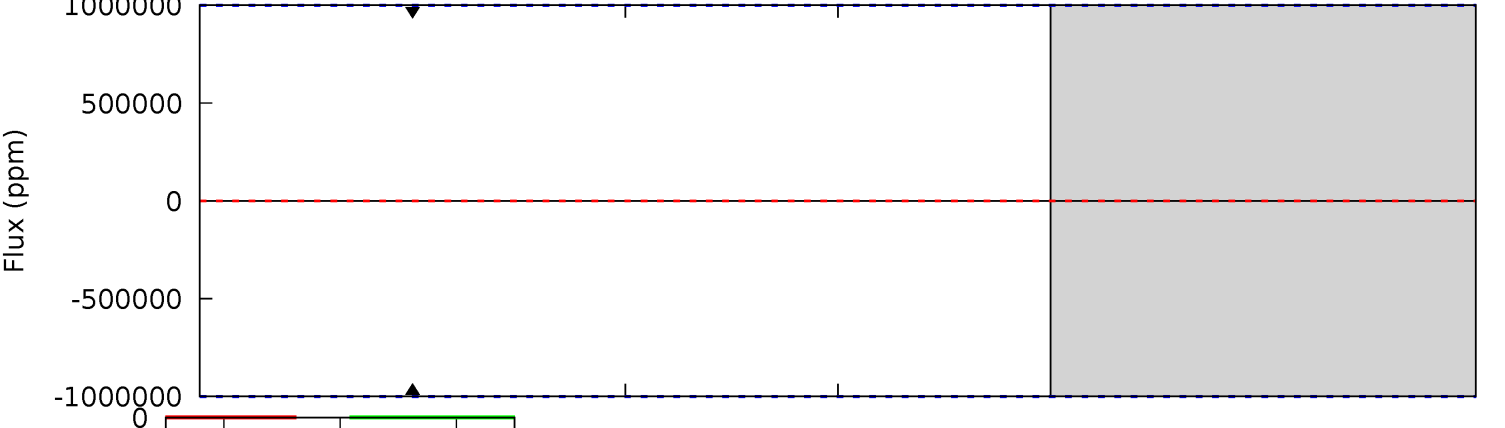
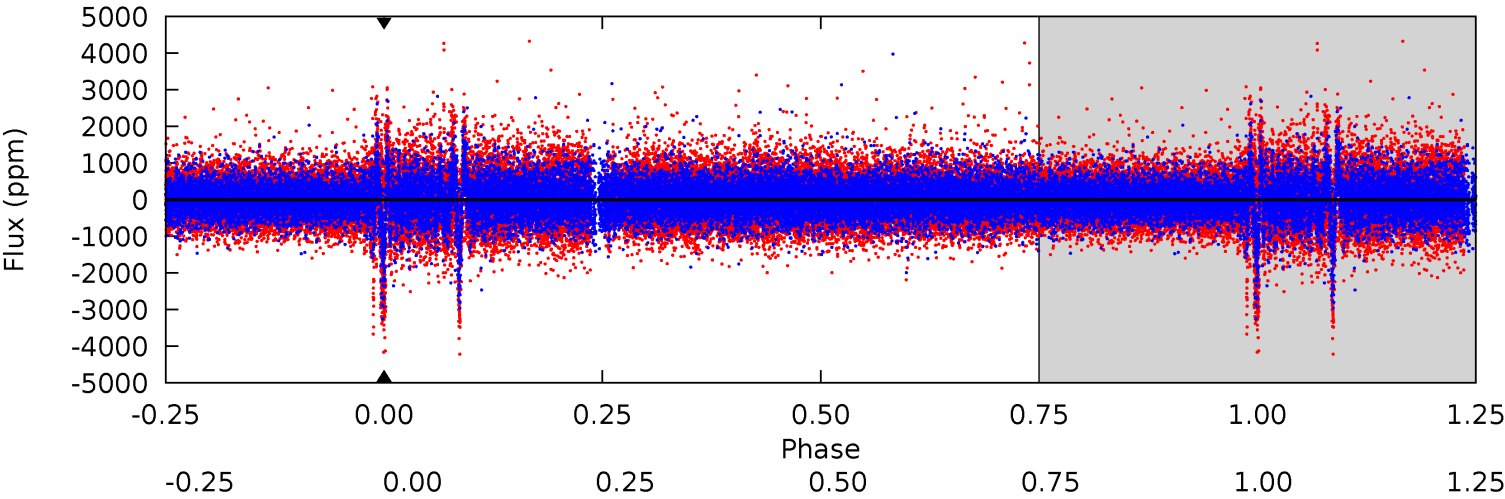
TCE 008160510-01 P=374.894525 Days  $T_0=257.705885$  (BKJD)



DV Model-Shift Uniqueness Test

008160510-01, P = 374.894525 Days, E = 257.647360 Days

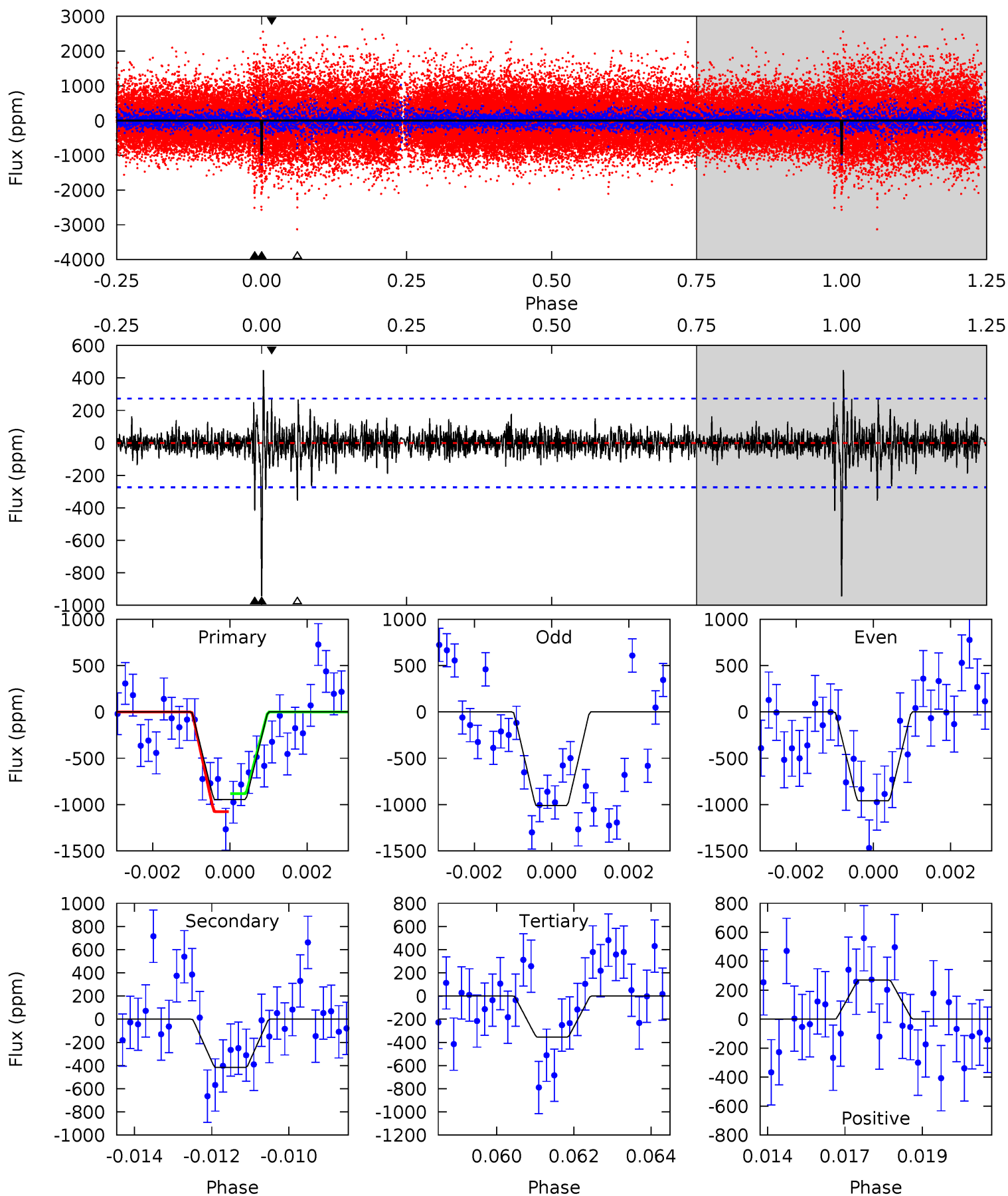
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008160510-01, P = 374.894525 Days, E = 257.705885 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	8.12	6.89	5.27	5.32	3.08	1.09	11.5	13.1	1.23	2.86	0.48	0.92	0.32	1.88



### Stellar Parameters For KIC 008160510

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6246^{+174}_{-261}$	$4.433^{+0.054}_{-0.202}$	$0.070^{+0.250}_{-0.350}$	$1.092^{+0.329}_{-0.141}$	$1.180^{+0.152}_{-0.169}$	$1.276^{+0.354}_{-0.660}$
	+3%/-4%	+1%/-5%	+357%/-500%	+30%/-13%	+13%/-14%	+28%/-52%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 008160510-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$9.62^{+10.40}_{-6.68}$	$395^{+28}_{-21}$	$6056^{+19786}_{-25598}$	$34061^{+1402671}_{-882644}$
Alt.	$-417 \pm 51$	$10.39^{+10.19}_{-7.01}$	$396^{+29}_{-20}$	$3571^{+1882}_{-686}$	$2445^{+19886}_{-1862}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

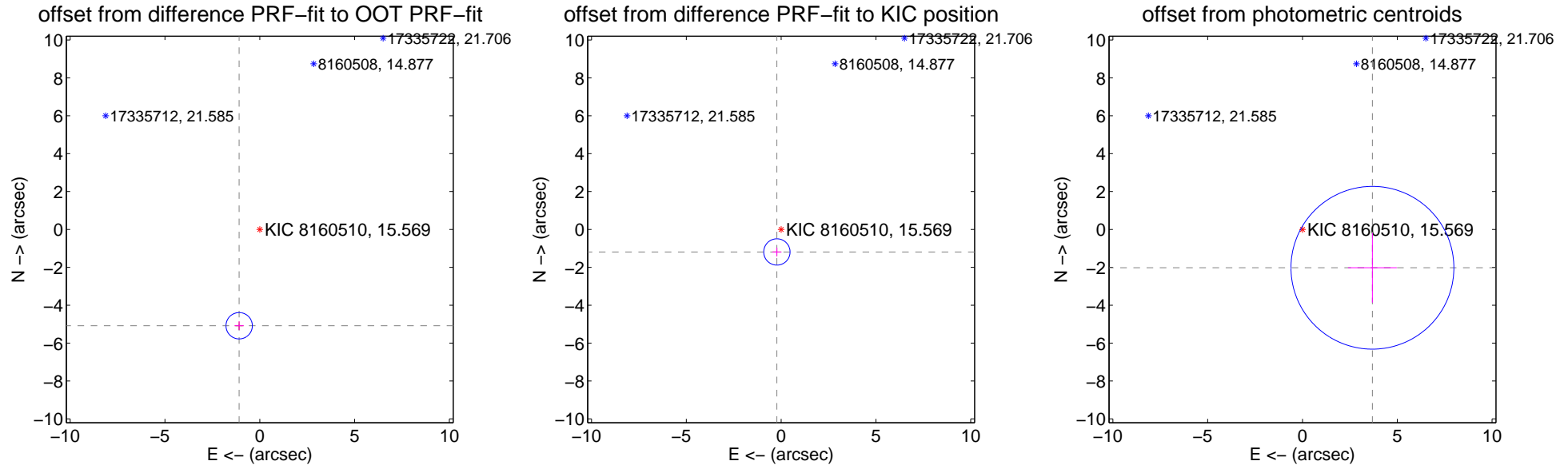
## DV Centroid Data

Supplemental centroid analysis for 008160510-01. Kepler magnitude: 15.57. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 3.99 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.200 \pm 0.232$	22.44	$1.087 \pm 0.239$	$-5.085 \pm 0.231$
PRF-fit source offset from KIC position	$1.209 \pm 0.232$	5.22	$0.223 \pm 0.239$	$-1.189 \pm 0.231$
photometric centroid source offset	$4.21 \pm 1.43$	2.94	$-3.69 \pm 1.29$	$-2.02 \pm 1.84$

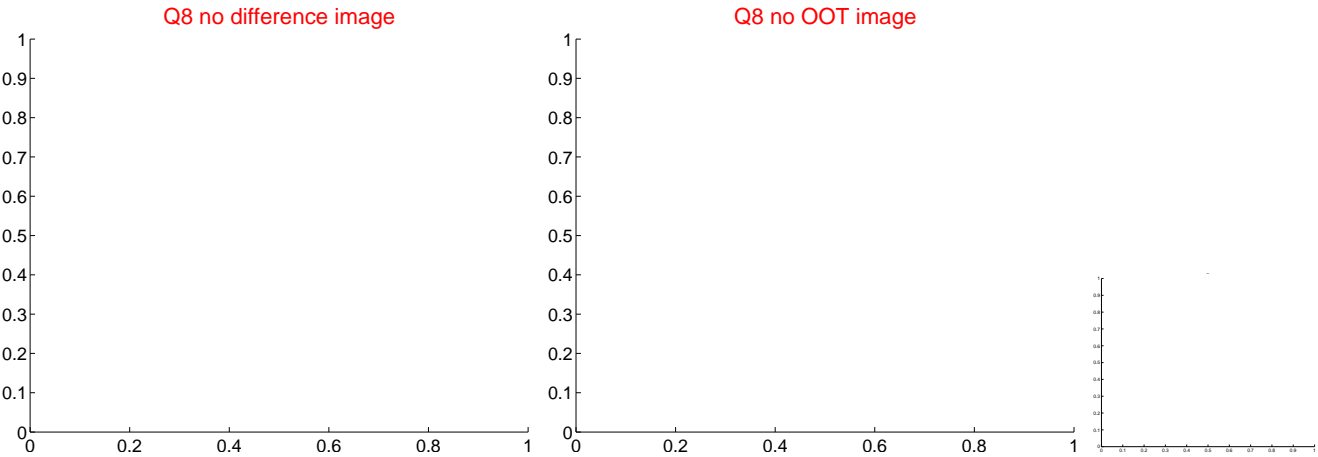
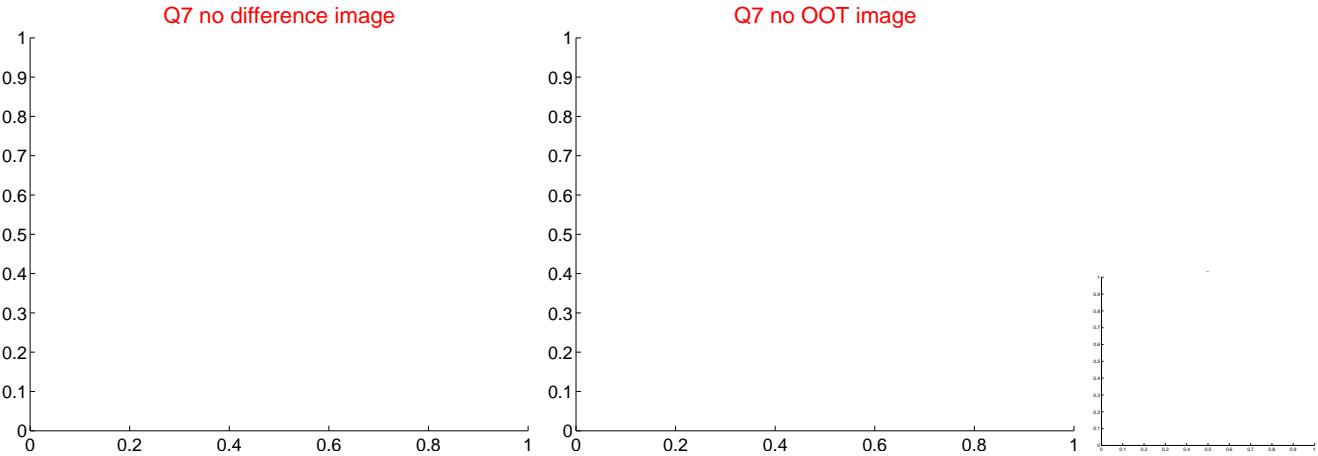
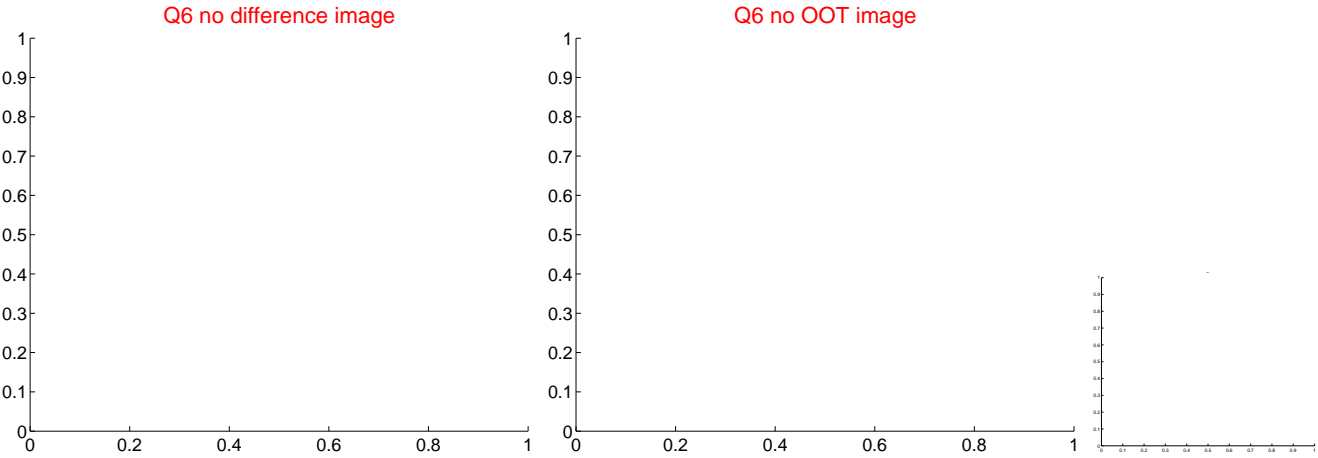
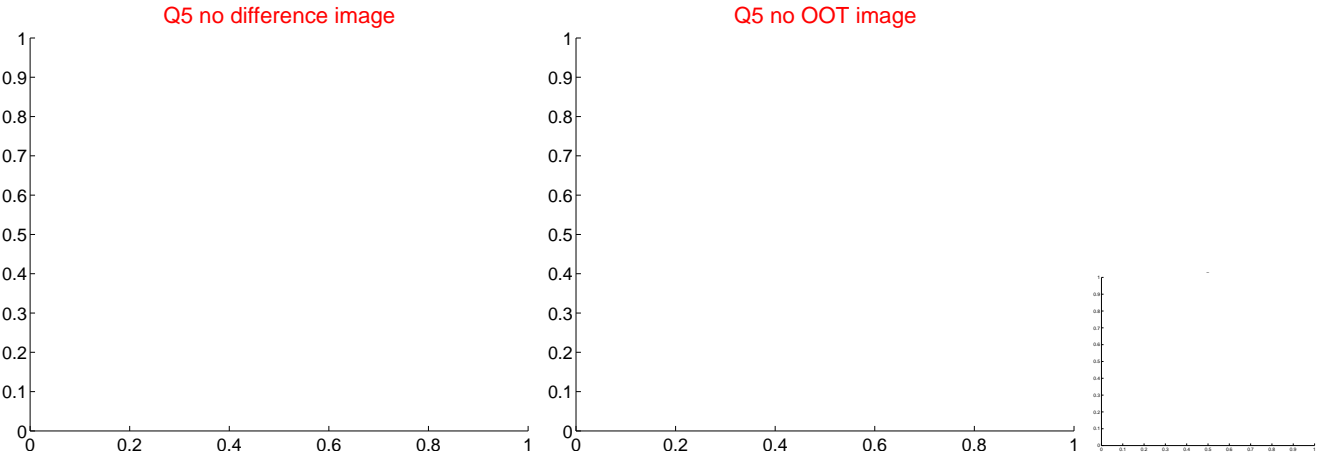


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

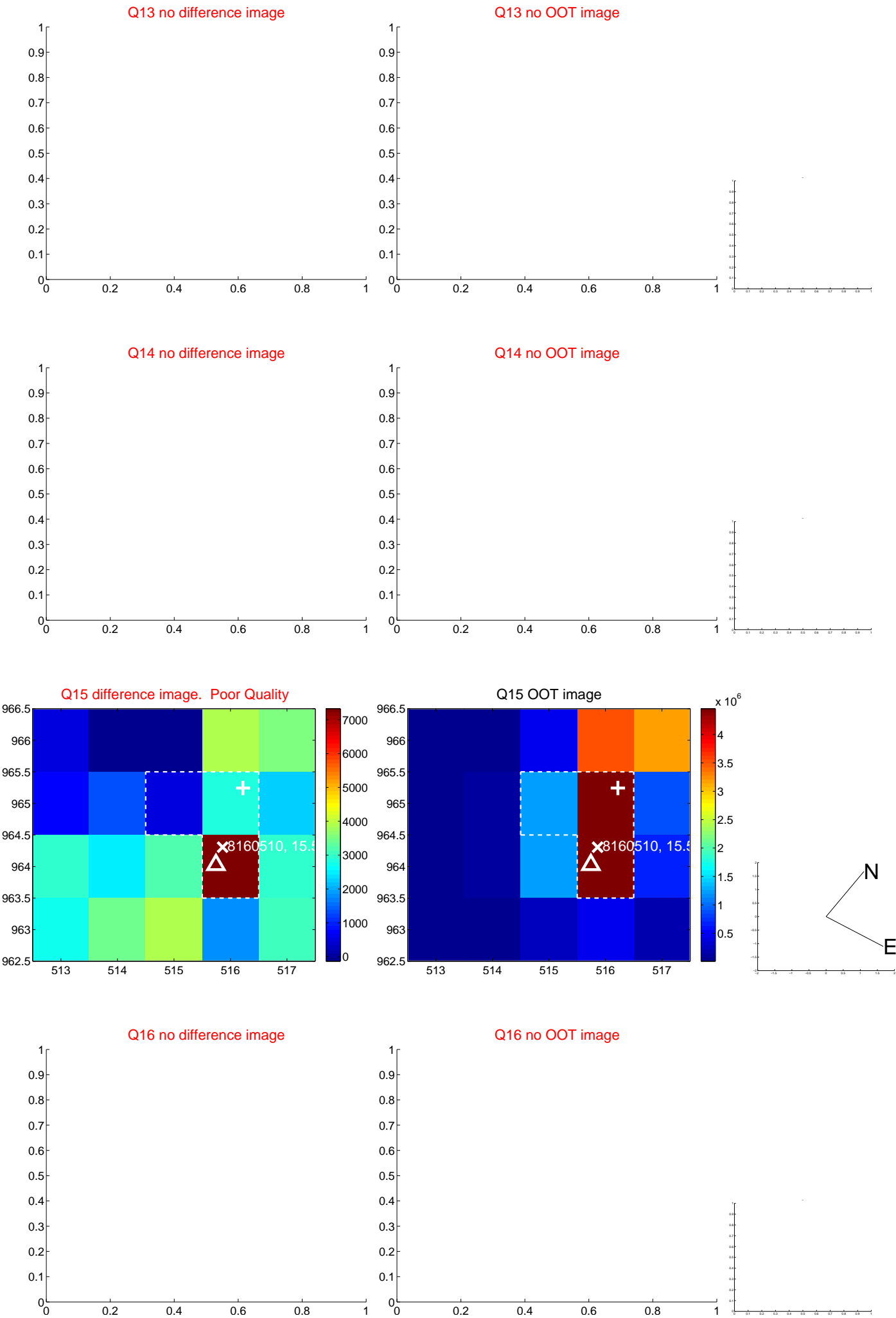




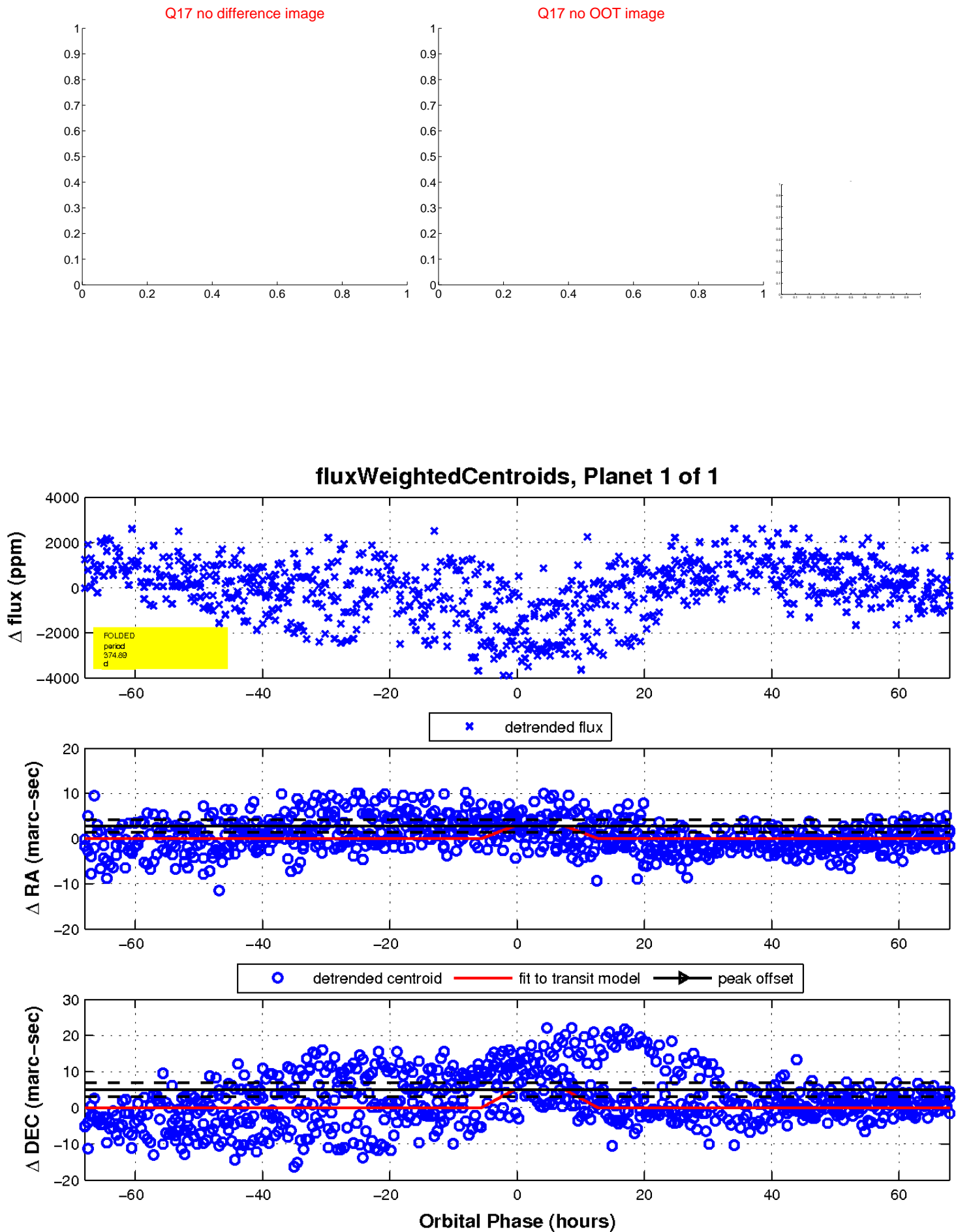
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

